

REMARKS

Claims 1-5 and 7-13 are pending. No claims are currently added or cancelled. Claims 10 and 12 have been withdrawn from consideration. Dependent claim 7 is currently amended for purposes of clarification and without adding new matter. Support for the amendment may be found, for example, in Applicant's original application published U.S. Pat. App. No. 2007/0209307 at ¶¶ [0014] and [0027]. Applicant respectfully requests reconsideration and prompt allowance of all pending claims, and rejoinder and allowance of the withdrawn claims, in view of the current amendment and the following arguments.

Rejections Under 35 U.S.C. § 112

Claims 1-5, 7-9, 11 and 13 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for purportedly failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claim 7 is currently amended to clarify that "said fibre insulation material is manufactured with a grammar weight of 10 to 50 kg/m³."

Regarding the rejection of independent claim 1, from which claims 2-5 and 7-13 depend, Applicant respectfully traverses the rejection. The Patent Office alleges:¹

Regarding claims 1-5, 7-9, 11, and 13, claims 1 and 11 recite that the bi-component fibers have an average length of approximately 3 mm and that the bi-component fibers have a length of approximately 3 mm. It is unclear what the scope of "approximately" necessarily entails, as the limitation is qualitative and subjective without further guidance in Applicant's specification as to the scope of the limitation. Additionally, based on Applicant's remarks of August 16, 2010, Applicant argues that "longer than 4 mm" is necessarily not within the scope of "approximately 3 mm," even though "longer than 4 mm" clearly includes lengths greater than but not including 4 mm. The burden is on Applicant to set forth where in Applicant's specification lengths "longer than 4 mm" is clearly contemplated as not commensurate in scope with the claimed limitation.

However, the fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under 35 U.S.C. § 112, second paragraph. Acceptability of the claim language depends on whether one of ordinary skill in the art would

¹ Office Action dated August 25, 2011, ¶ 3.

understand what is claimed, in light of the specification.² In fact, the Court of Appeals for the Federal Circuit has held that the term “approximately,” when used in conjunction with a single digit representing a claimed pH value, should be interpreted as being subjected to normal numerical rounding as would be practiced by one of ordinary skill in the art.³

Here, Applicant respectfully contends that one of ordinary skill in the art would understand that the bi-component fibers having “an **average** length of approximately 3 mm” as corresponding to a calculated arithmetic mean or average length determined by measuring fiber lengths (e.g. in mm) for a designated number of fibers selected from a given fiber population, then summing the measured lengths and dividing by the number of selected fibers, rounding the result to the nearest whole number. Thus, Applicant respectfully contends that an ordinary skilled understand would interpret an average length of approximately 3 mm as encompassing calculated arithmetic mean fiber length from 2.5 mm to 3.4 mm, even though the fiber population itself might include fibers having individual lengths that are much longer or much shorter than the average length.

Further support for Applicant’s contention that a skilled artisan would understand “approximately” as indicating that normal numerical rounding should apply is provided by the use of the term “approximately” in the very definition of the term “rounding” which appears on Dictionary.com:⁴

the process of replacing a number by another number of **approximately** the same value but having fewer digits: *To the nearest dollar, the rounding of \$27.68 yields \$28.*

Additionally, the Patent Office has not objected to Applicant’s use of the term “about” to modify the length of the claimed cellulose fibers in Applicant’s independent claim 1, which Applicant views as an admission by the Patent Office that the term “about,” which has the same meaning as the term “approximately,”⁵ is not indefinite under 35 U.S.C. § 112, second paragraph.

² MPEP §2173.05(b), citing *Seattle Box Co., v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 221 U.S.P.Q. 568 (Fed. Cir. 1984).

³ See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co., Inc.*, 62 F.3d 1512, 35 U.S.P.Q.2d (BNA) 1641 (Fed. Cir. 1995), *rev’d on other grounds*, 117 S. Ct. 1040, 41 U.S.P.Q.2d (BNA) 1865 (1997).

⁴ <http://dictionary.reference.com/browse/Rounding>.

⁵ See <http://dictionary.reference.com/browse/about>.

In summary, Applicant respectfully submits that the use of the term “an **average** length of approximately 3 mm” reasonably conveys to one of ordinary skill in the art that the claimed **average** fiber length has been subjected to the numerical numerical rounding process, and therefore literally covers a calculated arithmetic mean fiber length from 2.5 mm to 3.4 mm, even though the fiber population itself might include fibers having individual lengths that are much longer or much shorter than the average length. For at least the foregoing reasons, the rejection of claims 1-5, 7-9, 11 and 13 under 35 U.S.C. § 112, second paragraph, has been overcome, and the rejection should be reconsidered and withdrawn.

Rejections Under 35 U.S.C. § 103

Claims 1-5, 7, 9, 11 and 13 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious and unpatentable over Thompson Jr. et al. (US 5,642,601), in view of Frenette et al. (US 5,516,580) and Hauser (US 4,118,531). Claims 1-5, 7, 9, 11 and 13 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious and unpatentable over Thompson Jr. et al. (US 5,642,601), in view of Nielsen et al. (US 5,167,764) and Hauser (US 4,118,531). Claim 8 stands rejected under 35 U.S.C. § 103(a) as allegedly being obvious and unpatentable over Thompson Jr. et al. (US 5,642,601), in view of Frenette et al. (US 5,516,580) and Hauser (US 4,118,531) as applied to claims 1-5, 7, 9, 11 and 13 above, and further in view of McCullough Jr. (US 5,858,530). Claim 8 stands rejected under 35 U.S.C. § 103(a) as allegedly being obvious and unpatentable over Thompson Jr. et al. (US 5,642,601), in view of Nielsen et al. (US 5,167,764) and Hauser (US 4,118,531), as applied to claims 1-5, 7, 9, 11 and 13 above, and further in view of McCullough Jr. (US 5,858,530). Applicant respectfully disagrees with the rejection of the claims as currently amended, for at least the following reasons.

First, Applicant has currently amended independent claim 1, from which claims 2-5 and 7-13 depend, to include a limitation that the bi-component fibers have a length between 1 to 10 mm and an **average** length of approximately 3 mm. The Patent Office relies, for each of the foregoing claim rejections, on Frenette or Nielsen as allegedly teaching “that it was known in the insulation art to form an insulating material comprising cellulosic fibers and synthetic fibers, wherein the **cellulose** fibers have a length from about 1 mm to about 4 mm, and the bi-component fibres having a length between 1 to 10 mm and an **average** length of approximately

3 mm.⁶ However, Applicant respectfully contends that Nielsen has only been shown by the Patent Office to disclose **cellulose acetate** fibers.⁷ Furthermore, Applicant respectfully contends that neither Frenette nor Nielsen have been properly shown to disclose bi-component fibers having an **average** length of approximately 3 mm, as Applicant claims. If the Patent Office disagrees, then the Patent Office is respectfully invited to provide a proper citation, including column and line numbers, where each of the cited references provides such disclosure, and with sufficient specificity to permit Applicant a proper opportunity to respond to the rejection.

Second, with particular reference to the disclosure by Frenette of bi-component fibers having a length longer than 4 mm, Applicant respectfully contends that it would be mathematically impossible for a population of bi-component fibers, wherein all of the fibers have lengths longer than 4 mm, to exhibit an **average length** of approximately 3 mm (applying normal rounding procedures used by a person of ordinary skill in the art), as Applicant claims. Notwithstanding the Patent Office's allegation that Applicant's claims would be *prima facie* obvious "where the claimed ranges of fiber lengths overlap or lie inside ranges disclosed by the prior art,"⁸ Applicant respectfully contends that Frenette's disclosed bi-component fibers having a length longer than 4 mm **do not, indeed cannot** satisfy Applicant's claim limitation to bi-component fibers having an **average** length of approximately 3 mm, even though Applicant's claimed range of bi-component fiber lengths (1-10 mm) overlaps somewhat with the bi-component fiber lengths disclosed by Frenette (longer than 4 mm). Thus, Applicant respectfully submits that Frenette has not been shown to disclose or teach bi-component fibers have a length between 1 to 10 mm and an **average** length of approximately 3 mm, as required by Applicant's independent claim 1 as previously amended.

Third, Applicant respectfully contends that a complete and fair reading of Frenette for all that this reference discloses would not lead one of ordinary skill to seek to use bi-component fibers having a length between 1 to 10 mm and an **average** length of approximately 3 mm, at least because such a modification would render Frenette unsatisfactory for its intended purpose. As stated in the MPEP:⁹

⁶ Office Action dated August 25, 2011, ¶ 5-6 (*emphasis added*).

⁷ U.S. 5,167,764, col. 3, lines 54-54-59 (*emphasis added*).

⁸ *Id.*, p. 4, lines 10-11.

⁹ MPEP § 2143.01(V), citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

[i]f proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

Applicant understands Frenette to expressly require that the bi-component fibers be long fibers with a length more than 4 mm in order to effectively achieve bonding with the short cellulosic fibers having a length from about 1 mm to about 4 mm used in practicing the Frenette invention:¹⁰

Abstract

An insulating material is described and comprised of loose fill short cellulose fibers and bonding synthetic fibers. **The synthetic fibers are of longer length than the short cellulosic fibers** and have an outer sheath which is heat-fused with outer sheaths of other synthetic fibers at crossing contact points thereof to form a matrix having pockets for retaining the loose fill cellulosic fibers therein and throughout the matrix thereby eliminating the need of an adhesive binder to retain the cellulose fibers in the matrix. The matrix can form a body having the shape of a batt of insulation and the batt may be provided with a facing sheet of suitable vapor permeability.

FIGS. 2 and 3 illustrate the fabrication of the insulating material of the present invention which comprises loose fill short cellulosic fibers 11 trapped in a binding matrix formed by longer synthetic fibers 13 which bind together at their crossing contact points such as 14 to form pockets 12 which trap the short cellulosic fibers. **The short cellulosic fibers 11 have a length of from about 1 mm to about 4 mm**, and a diameter of between 15 to 40 microns. **The long bonding synthetic fibers are much longer and have a length which is more than 4 mm** and preferably, but not exclusively, longer than 25 mm. These synthetic fibers are of the type that become tacky without loosing their shape at a predetermined temperature. FIG. 4 shows a cross section of a bicomponent fiber with a core 17 which has a higher melting point than its outer sheath. The synthetic fibers are mixed with the short cellulosic fibers 11 at a level by weight of 3% to 20% and preferably 5% to 8%, and subjected to a heating process wherein the outer sheath 18, and not the core 17, become tacky, with minimum shrinkage. An example of such fibers would comprise bicomponents thereof which are sold by Hoechst Celanese Corp. under the trade mark CELBOND.

The longer synthetic bonding fibers 13 also have a diameter which is approximately the same as the fiberglass fibers of the prior art, above described. The synthetic fibers 13 may also be of another type than bicomponents provided that they become tacky without loosing their shape at a predetermined temperature. An example is vinyl chloride-vinyl acetate copolymer fiber sold under the trade name WACKER MP FASER. **It is therefore important that during the bonding process, to fabricate the insulating material of**

¹⁰ U.S. Pat. No. 5,516,580, Abstract; col. 3, lines 4-42; and Figs. 2-3 (*emphasis added*).

the present invention, that the mixture of the synthetic fibers and cellulose fibers be subjected to a predetermined temperature whereby the strength and length of the synthetic fibers is not effected but only sufficient to soften the polyester sheathing 18 to cause it to soften and bond at crossing contact points to form a matrix body of interconnected synthetic fibers which forms pockets to trap the loose short cellulosic fibers and thereby retain them in a body or batt having a specific shape.

Thus, if the long bonding synthetic (bi-component) fibers having a length longer than 4 mm as taught by Frenette were modified to include sufficient fibers having a length of 3 mm or shorter in order to obtain an average length of approximately 3 mm as Applicant claims, then **the synthetic fibers would necessarily not have a longer length than the short (1-4 mm) cellulosic fibers, as expressly required by the Frenette disclosure as cited above.**

Furthermore, Frenette would no longer operate as intended to achieve effective bonding of **long (> 4 mm) synthetic fibers to short cellulosic fibers having a length from about 1 mm to about 4 mm**, without the synthetic fibers losing their shape. However, Frenette expressly requires that the synthetic fibers maintain their shape in order to form "a matrix body of interconnected synthetic fibers which forms pockets to trap the loose short cellulosic fibers and thereby retain them in a body or batt having a specific shape."¹¹ Thus, Applicant respectfully submits that the alleged *prima facie* case of obviousness has been overcome by the current amendment to independent claim 1, from which claims 2-5 and 7-12 depend, adding a limitation that the bi-component fibers having a length between 1 to 10 mm and an average length of approximately 3 mm, as Applicant currently claims.

Fourth, Applicant respectfully contends that it has provided objective evidence of nonobviousness attributable to and commensurate in scope with the presently claimed invention, sufficient to rebut any alleged *prima facie* case of obviousness. According to MPEP § 2145, rebuttal evidence and arguments can be presented **in the specification**, by counsel, or by way of an affidavit or declaration under 37 CFR 1.132. Applicant has provided clear evidence in its originally-filed specification of the unexpected and advantageous effects which result by using bi-component fibers have a length between 1 to 10 mm and an average length of approximately

¹¹ *Id.*, col. 3, lines 31-42.

3 mm, in combination with cellulose fibers having a length between about 0.5 to 10 mm, and crimped synthetic fiber having a length between 12 to 75 mm:¹²

By using three different primary fibre components, a cellulose insulation composition/fibre product according to the invention, which is inexpensive in manufacture is achieved and still containing very good insulation characteristics. It is realised that the expensive bi-component fibre content may be reduced, due to the use of shorter fibres, and the overall weight of the end product relative to the use of raw materials is reduced. This separate portion of synthetic fibres makes the fibre material board resilient. Supporting tearing strength is also achieved by using crimped synthetic fibres.

In the preferred embodiment, the cellulose fibres have a length between 1 to 10 mm and the bi-component fibres have a length between 1 to 10 mm, preferably with an average length of approx. 3 mm. By using short bi-component fibres, it is possible to ensure a thorough opening/separation of the expensive bi-component fibres and a very homogeneous distribution in the forming process. Furthermore, the advantage of using short bi-component fibres is that they provide more "fibre ends" or contact points resulting in a more consistent end product and allowing for a reduction in the use of bi-component fibres.

Thus, in exemplary preferred embodiments using Applicant's claimed fiber combination, a cellulose insulation composition may be obtained that is inexpensive because less of the expensive bi-component fiber is used when shorter bi-component fibers are used. Furthermore, the overall weight of the end product may also be reduced and the tearing strength improved, while still maintaining very good insulation characteristics. Additionally, use of short bi-component fibers ensures a more thorough fiber opening and separation and a more homogenous fiber distribution, while also achieving more "fiber ends" or contact points useful in bonding.

Applicant respectfully contends that the present inventors recognized several deficiencies in the art pertaining to low cost cellulose insulation, and, having identified the nature of the problems to be solved, developed a nonobvious approach to solving those problems that had not previously been tried. "[A] patentable invention may lie in the discovery of the source of a

¹² Applicant's original application published as WO 2005/042850 at p. 4, lines 5-12

problem even though the remedy may be obvious once the source of the problem is identified. This is part of the 'subject matter as a whole' which should always be considered in determining the obviousness of an invention under 35 U.S.C. § 103." *In re Sponnoble*, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969). It is further emphasized that the inventors' recognition of this problem, as clearly delineated in the specification as referenced above, is especially relevant. That is, in accordance with MPEP 2141.02(IV), Applicants who allege they discovered the source of a problem must provide evidence substantiating the allegation, either by way of affidavits or declarations, **or by way of a clear and persuasive assertion in the specification.**¹³

Lastly, the Court of Appeals for the Federal Circuit has held that the non-obvious analysis must be conducted viewing the invention as a whole.¹⁴ When applying 35 U.S.C. 103, the references must also be considered as a whole, and must suggest the desirability and thus the obviousness of making the combination to a skilled artisan, sufficient for one of ordinary skill in the art to have a reasonable expectation of success in obtaining Applicant's claimed invention.¹⁵

Applicant respectfully contends that the Patent Office has provided no **rational** reason or basis for one of ordinary skill in the art to recognize the desirability of combining the three (or four) cited references in the manner suggested by the Patent Office, with a reasonable likelihood of success in obtaining Applicant's presently claimed invention. Frenette expressly teaches away from using synthetic fibers (i.e. bi-component fibers) having a shorter length than the short (1-4 mm) cellulosic fibers, as would be required in order for a skilled artisan to even attempt to satisfy Applicant's claim limitation to bi-component fibers having a length between 1 to 10 mm and an average length of approximately 3 mm. Thus, Applicant respectfully submits that the Patent Office's combination of references could only result from the improper application of hindsight analysis, using Applicant's own specification as a road map to pick and choose among isolated disclosures in order to obtain Applicant's claimed invention.

¹³ *In re Wiseman*, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979).

¹⁴ See *Ruiz v. A.B. Chance Co.*, 357 F.3d 1270, 1275 (Fed. Cir. 2004) (Without [the "as a whole"] requirement, an obviousness assessment might break an invention into its component parts (A + B + C), then find a prior art reference containing A, another containing B, and another containing C, and on that basis alone declare the invention obvious. This form of hindsight reasoning, using the invention as a roadmap to find its prior art components, would discount the value of combining various existing features or principles in a new way to achieve a new result—often the very definition of invention).

¹⁵ *Hodosh v. Block Drug Co.*, 786 F.2d 1136, 1143 n.5 (Fed. Cir. 1986)) ("Thus, even though every element of an invention may exist in prior art, the invention as a whole may still be non-obvious.").

Using "hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention" or conducting a "reference-by-reference, limitation-by-limitation analysis" fails to demonstrate how the invention is obvious in light of the prior art.¹⁶ Similarly, the Patent Office may not use Applicant's disclosed invention as a blueprint for linking together pieces of prior art in order to find the invention obvious.¹⁷ The Court of Appeals for the Federal Circuit has referred to using the invention as a "blueprint for piecing together the prior art . . . [as] the essence of hindsight."¹⁸

In summary, Applicant respectfully submits that the Patent Office has at least failed to properly provide a combination of prior art references that teaches or suggests all limitations of Applicant's claimed invention. Furthermore, Applicant respectfully submits that it has provided clear evidence found within the cited references sufficient to rebut the alleged *prima facie* case of obviousness¹⁹, by clearly establishing that one of ordinary skill in the art would not be properly motivated to modify the express teachings of Frenette or Nielsen with a reasonable likelihood of success in obtaining Applicant's presently claimed invention. Additionally, Applicant has presented objective evidence of the unexpected results and advantages obtained from Applicant's claimed invention. Lastly, because Frenette teaches away from Applicant's claimed invention, Applicant respectfully submits that a skilled artisan, combining the teachings of Thompson, Jr. in view of Frenette or Nielsen, further in view of Hauser and further in view of McCullough, when the references are viewed as a whole for all that they disclose, would not have a reasonable likelihood of success in obtaining Applicant's claimed invention. For at least these reasons, the combinations of references do not make obvious Applicant's independent claim 1.

In addition to the foregoing arguments, Applicant(s) submit that a dependent claim should be considered allowable when its parent claim is allowed.²⁰ Accordingly, provided

¹⁶ *Ecolochem, Inc. v. S. Cal. Edison Co.*, 227 F.3d 1361, 1371 (Fed. Cir. 2000) (quoting *In re Fine*, 837 F.2d 1071, 1075 (1988)).

¹⁷ *Interconnect Planning Corp v. Feil*, 774 F.2d 1132, 1141, 227 U.S.P.Q. 543 (Fed. Cir. 1985) ("It is impermissible to first ascertain factually what [the inventor] *did* and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and then utilized to reconstruct [the] invention from such prior art.").

¹⁸ *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999).

¹⁹ See MPEP § 2142

²⁰ *In re McCarn*, 101 USPQ 411 (CCPA 1954).

independent claim 1 is allowed, all claims depending therefrom should also be allowed. Thus, the rejections under 35 U.S.C. § 103(a) of claims 1-5, 7, 9, 11 and 13 as allegedly being obvious and unpatentable over Thompson, Jr. in view of Frenette and Hauser or Thompson Jr. et al., in view of Nielsen et al. and Hauser; and of claim 8 as allegedly being obvious and unpatentable over Thompson, Jr. in view of Hauser and Frenette, as applied to claims 1-5, 7, 9, 11, and 13 above, and further in view of McCullough, or Thompson Jr. et al., in view of Nielsen et al. and Hauser , as applied to claims 1-5, 7, 9, 11 and 13 above, and further in view of McCullough Jr.; has been overcome and should be withdrawn.

Request for Rejoinder

Withdrawn claims 10 and 12 depend from independent claim 1 and incorporate all the claim features of currently amended patentable independent claim 1. Accordingly, it is submitted that withdrawn claims 10 and 12 are likewise patentable. Therefore, Applicant respectfully requests reconsideration, rejoinder and allowance of claims 10 and 12 under CFR § 1.104.

CONCLUSION

Reconsideration and withdrawal of the rejections of claims 1-5, 7-9, 11 and 13 under 35 U.S.C. § 112, second paragraph as allegedly being indefinite is respectfully requested. Reconsideration and withdrawal of the rejections of currently pending claims 1-5 and 7-13 under 35 U.S.C. § 103(a) as allegedly being obvious and unpatentable over the cited combinations of references is respectfully requested. Applicant also respectfully requests rejoinder, reconsideration and prompt allowance of withdrawn claims 10 and 12, in light of the foregoing arguments.

Based on the foregoing, it is submitted that the application is in condition for allowance. Allowance of all presently pending claims at an early date is solicited. In the event that the Examiner disagrees, Applicant respectfully requests a telephone interview to more fully understand the Examiner's position and advance this case to issuance under the Patent Office's policy of Compact Prosecution. The Examiner is respectfully requested to contact Applicant's representative at the number below.

Respectfully submitted,

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